

SWQMP Appendix Z

**LFUCG Building Maintenance and Construction – Universal Waste Program
Guidelines**

LFUCG BUILDING MAINTENANCE AND CONSTRUCTION UNIVERSAL WASTE PROGRAM GUIDELINES

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INTRODUCTION

The LFUCG implemented the Universal Waste Program to manage all waste (spent) lamps, rechargeable batteries, electromagnetic light ballasts, and mercury thermostats generated by the LFUCG in May of 2000. This program was set up to be protective of the environment, to comply with environmental regulations, and to assist individual divisions with managing these wastes more efficiently.

Due to organizational changes within the LFUCG, Building Maintenance and Construction (BM&C) is now responsible for collecting universal wastes from individual divisions and storing these materials pending shipment to an outside vendor. BM&C will collect spent lamps, electromagnetic light ballasts, mercury containing equipment (MCE), and rechargeable batteries and transport these to a central storage facility located at 1555 Old Frankfort Pike. Additionally, Divisions that generate lead acid batteries can recycle these by transporting these directly to Fleet Services or returning these to the vendor.

In no case may Universal Wastes be dropped-off by other divisions at 1555 Old Frankfort Pike without prior approval from Building Maintenance and Construction. Individual divisions dropping-off lead acid batteries at Fleet Services must do so during normal working hours & coordinate drop-off with Fleet Services.

Please note that the wastes included in this program should not be disposed of in municipal trash due to environmental regulations and potential liabilities. Since this program provides individual divisions with a method for properly managing these wastes efficiently and at minimal cost, it is anticipated that all divisions will fully participate in this program.

PROGRAM OVERVIEW

- **Individual divisions (i.e. generators) which generate unwanted lamps, rechargeable batteries, electromagnetic light ballasts, or mercury containing equipment are responsible for collecting, labeling and storing these items until they are picked-up by Building Maintenance and Construction.** Individual divisions are responsible for providing containers for the lamps, ballasts and mercury containing equipment (or MCE) that they generate and must also contact Building Maintenance and Construction to schedule pick-ups. **Improperly packaged items will not be picked-up or accepted by Building Maintenance and Construction.** Each division that handles spent lamps, batteries, electromagnetic ballasts, and mercury-containing equipment is responsible for ensuring employees are properly trained on potential hazards posed by the materials as well as appropriate safety procedures.
- **Building Maintenance and Construction is responsible for collecting these items from individual divisions, storing these (as needed) and preparing these items for shipment to a recycling vendor.** Building Maintenance and Construction is also responsible for budgeting for recycling/disposal of these materials and recovering monies from state buildings that the LFUCG maintains. Building Maintenance and Construction shall also contact the vendors to schedule transport of these wastes and for signing manifests/bills of lading. Additionally Building Maintenance and Construction is responsible for retaining required records for a minimum of three years.
- **Fleet Services will serve as the collection point for lead acid batteries.**
- **The Risk Management Environmental Compliance Coordinator will provide technical assistance on the environmental requirements for managing these wastes and will assist in preparing and evaluating bids for recycling and disposal.** Risk Management may also survey individual divisions to document that they are participating in this program.

GENERATOR REQUIREMENTS

SPECIFIC REQUIREMENTS FOR GENERATORS OF BATTERIES

- **All rechargeable, NiCd batteries, nickel metal hydride batteries, and lithium ion batteries removed from service are included in this program as well as sealed lead acid batteries.** These are commonly found in cellular phones, cordless telephones, car telephones, video cameras, cameras, portable VCRs, TVs, stereos, CD players, portable power tools and laptop computers.
- **All batteries shall be fully discharged (i.e. "run down" or "dead") or the generator shall wrap the terminals of batteries with nonconductive (electrical) tape.**
- **Intentional breakage/damage of batteries is prohibited.**
- All batteries must be stored inside while on site. Small sealed lead acid batteries, NiCd batteries, nickel metal hydride batteries, and lithium ion batteries should be placed in double-walled cardboard boxes, fiber drums or 5-gallon plastic pails. **The batteries, the storage container(s) or the storage area itself must be marked "Universal Waste Spent Batteries."**
- **Large sealed lead acid batteries should be stored in a head-to-base (vertical) arrangement and the layers of batteries separated by cardboard to minimize the potential for shorting. The batteries, the storage container or storage area must be marked "Universal Waste Spent Batteries."**
- Divisions generating NiCd, lithium ion and nickel metal hydride batteries can request BM&C pick these up or drop these off at one of the existing LFUCG drop off locations. Currently the LFUCG has internal rechargeable battery recycling drop off points at the Government Center lobby, DEEM, Lexington Recycling Center, Fire Stations #1, 7, 10, 14, 21, COMTECH, Police Headquarters, and Building Maintenance and Construction.
- Undamaged NiCd, lithium ion and nickel metal hydride (dry cell) batteries may also be shipped to BM&C by interoffice (interdepartmental) mail. Prior to placing batteries in inter-departmental envelopes, non-conductive tape (such as scotch tape or electrical tape) should be placed over the battery terminals or batteries should be placed in individual plastic bags/envelopes to prevent short-circuits. Spent batteries of different types may be sent in one mailer, provided the ends are properly taped or the batteries placed in individual plastic bags/envelopes. Other items (such as letters, etc) should not be placed in the same mailer with the batteries since these may contain metal objects such as staples and paperclips that could cause the batteries to short-circuit. Care should be taken to avoid "overstuffing" the mailer to ensure the capacity of the inter-departmental mailer (envelope) is not exceeded. Mailers should be addressed to "Battery Coordinator" in Building Maintenance and Construction.
- **Lead acid batteries** may be transported by individual divisions directly to Fleet Services provided prior approval is received or the individual division may return these to the original vendor. Building Maintenance and Construction will also pick up lead acid batteries upon request.
- **Alkaline batteries should be placed in the trash.** Alkaline batteries are not included in this program since they have no recyclable value. The manufacturers indicate alkaline batteries do not contain significant concentrations of mercury and can be disposed of in the trash.

SPECIFIC REQUIREMENTS FOR GENERATORS OF LAMPS

- **All spent (used) lamps generated by the LFUCG shall be included in this program.** This includes fluorescent, high intensity discharge (HID), mercury vapor, metal halide, high-pressure sodium, neon and incandescent lamps removed from buildings, outdoor light fixtures, vehicles, traffic signal devices and other equipment.
- **Intentional breakage of spent lamps is strictly prohibited.**
- Wherever possible, individual divisions shall keep the original container(s) and place the lamps back in the original container(s) when they burn out. **For small lamps, it is recommended divisions use fiber drums (which can be obtained at no cost from Traffic**

Engineering), cardboard boxes or plastic pails for storage. For straight fluorescent lamps, it is recommended that the spent bulb be marked on the end with a permanent marker (to denote that the bulb has been used) and immediately placed back into the original box; this will allow you to place spent bulbs into the original container even if there are also new bulbs in this container. If individual divisions choose not to save the original containers, they may purchase containers for the spent lamps from vendors such as USA Lamp 1-800-778-6645. **Wrapping tape around groups of spent lamps that are not in containers will not be an acceptable substitute for containerization and incorrectly packaged spent lamps will not be picked-up by Building Maintenance and Construction.**

- The division removing the spent lamp shall promptly label the container that the spent lamp is placed into or the storage area itself with the following label: "Universal Waste Contains Spent Lamps."
- The division removing the spent lamps from service will be responsible for periodically contacting Building Maintenance and Construction to schedule a pickup of the spent lamps.
- Generators must immediately clean up and place in a container any lamp that is broken as well as any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment. Containers must be closed, structurally sound, and compatible with the contents of the lamps. Plastic pails, fiber drums or metal drums can be used for this purpose. The broken lamps must then be recycled through our Universal Waste program.

SPECIFIC REQUIREMENTS FOR GENERATORS OF PCB AND DEHP BALLASTS

- **All removed electromagnetic ballasts manufactured prior to 1991 are included in this program.** Electromagnetic ballasts manufactured prior to July 1, 1979 shall be considered to contain PCBs unless they are marked "Contains No PCBs". Electromagnetic ballasts manufactured between July 1, 1979 and 1991 shall be considered to contain DEHP. Ballasts containing PCBs should be stored in a separate container than those containing DEHP to facilitate transport.
- **Leaking PCB ballasts should immediately be placed in a sealed plastic bag and placed in a steel container separate from all other ballasts. Leaking DEHP ballasts shall also immediately be placed in a sealed plastic bag and placed in a steel container separate from all other ballasts. If a PCB ballast is heavily involved in a fire or contains oil on the exterior, it shall be considered a leaking PCB ballast and handled accordingly.** Any material which comes into contact with (liquid) oil from leaking PCB ballast(s) shall be disposed of in the drum for leaking PCB ballasts or be decontaminated using EPA procedures.
- Containers shall be marked by the division removing the ballasts from service indicating the container contents. **All containers of PCB ballasts shall be labeled with a "Caution Contains PCBs" label. The container shall also be marked with the date that ballasts are first placed in the drum.**
- Ballasts shall be handled carefully in a manner that minimizes the possibility of leakage. Ballasts shall not be intentionally dropped, nor shall the ends of the ballasts be bent back purposefully. **Employees that routinely remove ballasts as part of their regular job duties will carry labeled containers on their work vehicles to store/transport removed ballasts.** It is recommended that 5-gallon plastic pails be used.
- Since the LFUCG is being charged for disposal of ballasts by weight, wires should be clipped as close as possible to the ballast to minimize weight and associated disposal costs.
- **If the entire fixture is being removed from service, the employee(s) removing the fixture will promptly remove the electromagnetic ballast.** Once the electromagnetic ballast has been removed, the aluminum reflector shall be recycled. Environmental Recycling, located at 3899 Winchester Road, will accept these for recycling.
- PCB ballasts removed from service can only be stored on site for a maximum of 30 days before being transported to Building Maintenance and Construction at 1555 Old Frankfort Pike, since this is the only location registered with the EPA for PCB activity. **PCB ballasts**

must be taken to Building Maintenance and Construction at 1555 Old Frankfort Pike within 30 days of being removed from service.

- Removed electronic ballasts should be recycled through the LFUCG Surplus Electronics Recycling Program and not the Universal Waste Program.

SPECIFIC REQUIREMENTS FOR GENERATORS OF MERCURY CONTAINING EQUIPMENT

- All unwanted and intact mercury thermostats, thermometers, temperature gauges, manometers, barometers, switches and similar items are included in this program. Divisions shall handle these carefully to minimize breakage.
- It is recommended that this unwanted MCE be placed in a 5-gallon container (such as a plastic pail) with a lid. This container must be marked "Universal Waste Contains Mercury Equipment."

BUILDING MAINTENANCE AND CONSTRUCTION PACKAGING AND SHIPPING REQUIREMENTS

PACKAGING SPECIFICATIONS FOR SPENT BATTERIES

- Building Maintenance and Construction will ensure all batteries that they handle are fully discharged or have the terminals covered with nonconductive electrical tape to prevent shorts during storage and transport. Batteries should be segregated and placed in separate containers (based on type) to facilitate recycling to the extent practical.
- Building Maintenance and Construction will ensure spent NiCd, lithium ion and nickel metal hydride batteries are properly packaged for transportation as required by the Department of Transportation regulations and the Rechargeable Battery Recycling Corporation (RBRC). **Building Maintenance and Construction will ship these batteries by UPS using prepaid shipping containers supplied by the Rechargeable Battery Recycling Corporation (RBRC).** The RBRC will pay all shipping and recycling costs.
- Lead acid batteries shall be transported to Fleet Services; these will subsequently be picked up by an outside vendor. Since BM&C will not be shipping sealed lead acid batteries there are no significant packaging requirements. However all sealed lead acid batteries should have the terminals covered with nonconductive electrical tape to prevent shorts during storage/transport. Additionally the manufacturer recommends sealed lead acid batteries be stacked in a head-to-base arrangement and the layers of batteries separated by cardboard to minimize potential for shorting during storage.

PACKAGING SPECIFICATIONS FOR SPENT LAMPS

- Building Maintenance and Construction will ensure lamps at 1555 Old Frankfort are properly packaged for transportation and will contact USA Lamp to schedule pickup. Minimum load shall be one pallet.
- All lamps shall be placed in cardboard boxes or fiber drums.
- Boxes and fiber drums should be filled to capacity to eliminate voids & associated breakage. Newspapers can be used to fill voids in drums & cubic yard boxes.
- Fluorescent U tubes should be placed in container(s) metal end to metal end.
- **The exterior of each box or drum shall be labeled "Universal Waste Spent Lamps."**
- Boxes should be placed on a pallet by stacking 5 boxes across & no more than 5 boxes high. Any overhang will result in breakage and is not permitted.
- Boxes should be secured on pallets using shrink-wrap or stretch-wrap. Banding is optional.
- Building Maintenance and Construction may obtain pallets and fiber drums from an internal source such as Traffic Engineering or purchase pallets from a vendor.

PACKAGING SPECIFICATIONS FOR SPENT PCB & DEHP BALLASTS

- Building Maintenance and Construction will ensure ballasts are properly packaged for transportation and will contact USA Lamp at least three weeks in advance to schedule pickup.

- Intact (non-leaking) PCB ballasts and DEHP ballasts shall be segregated so that they are placed in separate container(s). Leaking PCB ballasts should immediately be placed in a sealed plastic bag and then placed in a container separate from all other ballasts. Leaking DEHP ballasts shall also be placed in a sealed plastic bag and then in a container separate from all other ballasts. Absorbent should not be placed in any container(s).
- Containers must be DOT approved. Intact ballasts can be shipped in 5-gallon pails. Leaking PCB ballasts should be shipped in open head steel drums with lids (DOT designation UN 1A2).
- If steel drums are being used, the weight of the drum shall not exceed 800 pounds. The maximum quantities of ballasts that can be placed in a single 55-gallon drum are 200 4ft lamp ballasts or 100 8ft lamp ballasts.
- Containers should be properly labeled. Containers of leaking PCB ballasts should be labeled "Contains PCBs for Incineration". Containers of non-leaking PCB ballasts should be labeled "Contains PCBs for Recycling/Incineration". Containers of DEHP ballasts should be labeled "DEHP Ballasts for Recycling/Incineration". USA Lamp will provide labels for drums. **All drums containing PCB ballasts shall be labeled with a DOT Class 9 label as well as a "Caution Contains PCBs" label. The drum shall also be marked with the date that ballasts are first placed in the drum.**
- Leaking PCB ballasts must be stored in an area with secondary containment. Other ballasts should be stored in secondarily contained areas as space permits.
- Containers should be secured on pallets using shrink-wrap or stretch-wrap; banding is optional.
- **Containers of PCB ballasts shall be shipped using a Hazardous Waste Manifest.** The DOT shipping name "Waste, Polychlorinated Biphenyls, Mixture, 9 UN2315-PGII RQ" shall be used. DEHP ballasts shall be shipped under a bill of lading.
- **Building Maintenance and Construction personnel shall inspect containers at least every 30 days for leaks and shall immediately transfer any leaking ballasts to a non-leaking container.** The results of the inspections shall be recorded on the (attached) written checklist.
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PACKAGING SPECIFICATIONS FOR MERCURY CONTAINING EQUIPMENT

- Building Maintenance and Construction will ensure unwanted mercury containing equipment (MCE) is properly packaged for transportation as required by the Department of Transportation and BM&C will contact USA Lamp to schedule pickup at least three weeks in advance. MCE will be shipped under a bill of lading.
- MCE shall be placed in DOT approved 5-gallon pails with lids. **Pails shall be labeled "Universal Waste Contains Mercury Equipment."**
- Pails should be stored in secondarily-contained area pending shipment if space permits.

BM&C RECORD KEEPING AND DOCUMENTATION REQUIREMENTS

- Building Maintenance and Construction will be responsible for determining the (approximate) amount of ballasts, lamps and mercury containing equipment shipped to USA Lamp. This may be accomplished by periodically counting the containers, performing a spot check by periodically counting individual items, or weighing the container(s) and dividing the weight of the container by the weight of the individual item being counted. Tracking the amount of rechargeable batteries that are recycled is unnecessary since the LFUCG does not pay recycling costs for these items. The receipts provided to Fleet Services by vendor at time of pickup will be used to indicate the approximate number of lead acid batteries being recycled.
- Building Maintenance and Construction will keep 30-day container inspection records for a minimum of three years. Copies of completed inspection reports shall also be sent to the Risk Management Environmental Compliance Coordinator monthly.

- Building Maintenance and Construction will sign shipping papers for universal wastes that they manage (batteries, non-PCB ballasts, mercury containing equipment, and spent lamps). Fleet Services will complete necessary paperwork for batteries that they manage.
- Building Maintenance and Construction will be responsible for signing (on behalf of LFUCG) the Uniform Hazardous Waste Manifest for shipping leaking and non-leaking PCB ballasts. This form contains multiple copies. Once Building Maintenance and Construction and the transporter have both signed the manifest, one copy shall be retained by Building Maintenance and Construction and all other copies given to the transporter. Building Maintenance and Construction shall also be responsible for notifying Risk Management if a copy of the manifest signed by the receiving facility (USA Lamp) is not subsequently received within 35 days of shipment so that an exception report can be filed with the EPA. Building Maintenance and Construction shall also notify Risk Management if they do not receive a Certificate of Disposal indicating PCBs have been incinerated within 30 days of waste disposal.
- **Building Maintenance and Construction will retain all records for a minimum of three years.** This includes hazardous waste manifests, bills of lading, invoices, tracking forms and inspection sheets, etc). Copies of records should also be sent to the Risk Management Environmental Compliance Coordinator as a backup.

SPILLS AND RELEASES

- **Releases will need to be reported to outside agencies by the responsible division if the quantity spilled into the environment exceeds the reportable quantity (RQ).** The RQ for PCBs is one pound. The RQ for mercury is also one pound. The RQ for the remaining materials that are being handled under this program are sufficiently high that they should not be exceeded if a spill occurred. For reporting purposes, one capacitor found in an electromagnetic light ballast contains less than one ounce of PCBs, a fluorescent lamp typically contains less than 0.001 ounces of mercury, a fever thermometer contains approximately 0.02 ounces of mercury, a thermostat contains approximately 0.1 ounces of mercury, and a sphygmomanometer (blood pressure device) typically contains approximately two ounces of mercury, respectively. Spills of PCBs or mercury which exceed one pound should be reported to the Kentucky Natural Resources and Environmental Protection Cabinet (NREPC), the Local Emergency Planning Commission (LEPC), the Kentucky Emergency Response Commission (KERC), and the Division of Environmental and Emergency Management (DEEM). **Additionally spills directly into storm sewers or streams must also be reported to the National Response Center (NRC) even if the quantity spilled is less than the RQ.** Risk Management should also be notified of any significant releases of liquid mercury, PCBs or DEHP into the environment in order to assist divisions comply with regulatory reporting and cleanup requirements.
- **All spills into the environment must be cleaned up immediately regardless of whether reportable quantity is exceeded. Spills must be cleaned-up using EPA procedures contained in 40 CFR 761.125.** Upon request Risk Management will assist the responsible division with determining cleanup requirements.
- Regulatory requirements regarding cleanup of PCB releases are especially strict. Items which have liquid PCBs on their surface (such as light fixtures) should be removed and transported directly to the Building Maintenance and Construction storage facility at 1555 Old Frankfort Pike and placed in container(s) designated for disposal of leaking PCBs or be decontaminated using EPA procedures contained in 40 CFR 761.125.
- **When a spill of mercury occurs, HazMat response contractors such as CMC Environmental (885-4955), PECCO (887-5508) or Evergreen Environmental (502-241-4171) should be contracted to clean up the spill.** Typically HazMat response contractors will ventilate the area, apply absorbent material (such as calcium polysulfide) to encapsulate the spill, vacuum the area with a vacuum cleaner designed specifically for recovery of mercury, and monitor the air to ensure mercury concentrations are acceptable. If mercury is spilled on a porous material such as a carpet it is very difficult to recover and will eventually

volatilize; in these instances consideration should be given to removing and disposing of the contaminated material. Recovered mercury shall be treated as hazardous waste and placed in a separate container than other wastes. It should be noted that the Kentucky Cabinet for Health and Family Services issued an August 1, 2005 guidance document indicating that cleanup of mercury should proceed until mercury levels in the air are 3 micrograms of mercury per cubic meter or less. This same document indicates that if a spill occurs on soil, the soil should be cleaned up so that mercury levels are 310 mg/kg or less.

- **Spills of lead acid battery electrolyte may be neutralized with baking soda.** The resulting mixture can be placed in the trash once the acid is neutralized. To ensure the spill has been properly neutralized, pH paper can be used as an indicator. **If acid is spilled onto skin or eyes, water should be used to decontaminate eyes or skin (not baking soda).**
- **Broken lamps should be swept up and placed in an appropriate container and subsequently recycled as outlined under "generator responsibilities."**
- **Employees should not cleanup spills if they have not been properly trained and/or lack appropriate personal protective equipment.**

SAFETY CONSIDERATIONS

SAFETY CONSIDERATIONS FOR EMPLOYEES HANDLING SPENT LAMPS

- All lamps present a puncture hazard if broken.
- **Spent fluorescent lamps** may contain small amounts of mercury (approximately 0.02% of bulb by weight), phosphor powder nuisance dust (approximately 2.5% of lamp by weight), aluminates and yttrium oxide (which comprise approximately 0.75% of lamp by weight and are contained within the phosphor powder), antimony (approximately 0.01% of lamp by weight), and manganese (approximately 0.02% of lamp by weight). Exposure to elevated concentrations of mercury can adversely impact the eyes, skin, respiratory system, central nervous system, and kidneys. Exposure to elevated concentrations of phosphor powder nuisance dust and aluminates may adversely impact the lungs. Exposure to elevated concentrations of yttrium oxide may result in fibrosis. Exposure to elevated levels of antimony and manganese can adversely impact the central nervous system, and lungs; exposure to manganese can also effect the reproductive system. In order to protect employees, the American Conference of Governmental Industrial Hygienists (ACGIH) has established recommended 8 hr time-weighted-average (TWA) exposure limits of 0.25 mg per cubic meter for mercury, 10 mg per cubic meter for phosphor powder nuisance dust and aluminates, 1 mg per cubic meter for yttrium oxide, 0.5 mg per cubic meter for antimony, and 5 mg per cubic meter for manganese. Additionally OSHA has established an immediately dangerous to life or health (IDLH) exposure limit of 10 mg per cubic meter for mercury, 50 mg per cubic meter for antimony, and 500 mg per cubic meter for manganese. A Material Safety Data Sheet provided by the manufacturer (Philips) indicates breakage of fluorescent lamps may result in some exposure to the phosphor powder and elemental mercury vapor. **The MSDS states no adverse health impacts are expected from occasional exposure to broken fluorescent lamps.**
- **Other types of spent lamps** may contain mercury (similar to fluorescent lamps discussed above) as well as cadmium and lead. Exposure to significant levels of cadmium can affect the respiratory system, kidneys, prostate & blood. Exposure to significant concentrations of lead can adversely impact the eyes, gastrointestinal tract, central nervous system, kidneys, blood & gingival tissue. Cadmium exposure limits of 0.01 mg per cubic meter (TWA) have been established by the ACGIH to protect employees. Recommended lead exposure limits of 0.05 mg per cubic meter (TWA) have been established by the ACGIH to protect employees. Additionally OSHA has established an IDLH of 9 mg per cubic meter for cadmium and 100 mg per cubic meter for lead.
- Broken sodium lamps present a danger of significant heat generation when exposed to water.
- Metal halide lamps may cause serious skin burn and eye inflammation from ultraviolet radiation if the lamp is operated when the outer envelope of lamp is broken or punctured.
- **At a minimum, employees shall wear appropriate hand and eye protection when dealing with broken lamps.**

- **Employees should avoid inhalation of airborne dust generated by broken lamps to the extent possible.** Ventilation can be increased by opening windows and/or doors to disperse dust.

SAFETY CONSIDERATIONS FOR EMPLOYEES HANDLING SPENT BATTERIES

- Nickel metal hydride batteries and lithium ion batteries do not represent any significant exposure risk to employees since these are dry cell batteries.
- Lead acid batteries contain sulfuric acid, lead, lead dioxide, and lead sulfate. **NiCd batteries contain potassium hydroxide and sodium hydroxide electrolyte. Intact lead acid and intact NiCd batteries do not pose any significant exposure risks to employees since the hazardous ingredients used during manufacture of the batteries are contained entirely within the batteries. Intentional breakage may result in unnecessary exposure to employees and is prohibited.**
- Sealed lead acid batteries and NiCd batteries do not leak electrolyte under normal usage. Severely overcharged or abused batteries may leak small amounts of electrolyte. The electrolyte can cause irritation of eyes, nose, and throat. Breathing mist produces respiratory difficulty. Contact with skin and eyes causes irritation and skin burns. **At a minimum acid-resistant rubber gloves and safety glasses should be worn when handling leaking lead acid batteries and leaking NiCd batteries.**
- **If acid is spilled onto the skin or eyes, they should be flushed with large quantities of water.** Baking soda should not be utilized to neutralize acid spilled on skin or in eyes.

SAFETY CONSIDERATIONS FOR EMPLOYEES HANDLING ELECTROMAGNETIC BALLASTS

- **Intact (non-leaking) ballasts do not pose any significant exposure risks to employees since the hazardous ingredients used during the manufacture of the ballasts are contained inside the ballast.**
- Electromagnetic ballasts manufactured prior to 1979 contain polychlorinated biphenyl's (PCBs) unless they are marked "Contains No PCBs". PCBs are recognizable as clear or yellow oil. Exposure routes include absorption through the skin and eyes as well as inhalation and ingestion. Exposure to significant levels of PCBs may adversely impact the skin, eyes, liver and reproductive system. The ACGIH has established an 8-hr TWA exposure limit of 0.001 mg per cubic meter to protect employees. OSHA has established an IDLH of 5 mg per cubic meter for PCB exposure.
- Electromagnetic ballasts manufactured between 1979 and 1991 contain di (2- ethylhexyl) phthalate or DEHP. DEHP is recognizable as a clear oily liquid. Exposure routes include ingestion, skin and eye contact, and inhalation of mists (when heated). DEHP is a potential carcinogen. Exposure to elevated levels may cause skin & eye irritation and adversely impact the central nervous system, liver, and reproductive system. The ACGIH has established an 8 hr TWA of 5 mg per cubic meter for DEHP.
- **Electromagnetic ballast(s) that have oil or potting material on the exterior shall be treated as a leaking ballast. Similarly, electromagnetic ballasts that are heavily involved in a fire shall be treated as leaking ballast(s).**
- **Employees shall at a minimum wear rubber gloves (such as butyl or neoprene) when handling intact PCB electromagnetic ballasts and butyl rubber, vitron or comparable gloves when handling DEHP electromagnetic ballasts to prevent exposure and as protection against cuts. These gloves have a breakthrough time of approximately eight hours once exposed to PCBs or DEHP.**
- **No attempt should be made to decontaminate and reuse porous materials (such as rubber gloves) once they are exposed to liquid PCBs and/or DEHP and the breakthrough time is exceeded.**
- **Employees shall at a minimum wear face protection (face shields) and skin protection (such as Tyvek suits) and butyl, neoprene or comparable gloves when dealing with leaking ballasts. If the vapor concentrations exceed the TLV, respiratory protection will also be required.**

SAFETY CONSIDERATIONS FOR EMPLOYEES HANDLING MERCURY CONTAINING EQUIPMENT

- **Intact (non-leaking) mercury containing equipment does not pose any significant exposure risks to employees since the mercury is enclosed.**
- **Intentional breakage is prohibited.** Mercury vapors may be generated from broken MCE.
- Exposure to elevated concentrations of mercury can adversely impact the eyes, skin, respiratory system, central nervous system, and kidneys. In order to protect employees, the American Conference of Governmental Industrial Hygienists (ACGIH) has established recommended 8 hr time-weighted-average (TWA) exposure limits of 0.25 mg per cubic meter for mercury. Additionally OSHA has established an immediately dangerous to life or health (IDLH) exposure limit of 10 mg per cubic meter for mercury. It should be noted that the Kentucky Cabinet for Health and Family Services issued an August 1, 2005 guidance document indicating that cleanup of mercury should proceed until mercury levels in the air are 3 micrograms of mercury per cubic meter or less. This same document indicates that if a spill occurs on soil, the soil should be cleaned up so that mercury levels are 310 mg/kg or less.
- The manufacturer recommends employees wear rubber gloves such as (Saranex or Barricade), eye protection, skin protection (such as lab coat, apron or Tyvek suit) when handling small quantities of leaking MCE; if the vapor concentration exceeds the TLV, respiratory protection is also required.

LIST OF CONTACTS AND ATTACHMENTS

PROGRAM CONTACTS

- **BUILDING MAINTENANCE AND CONSTRUCTION**
Harold Shields: 258-3923
- **FLEET SERVICES**
Mike Fogle: 258-2867
Bill Hinton: 258-3915
- **RISK MANAGEMENT**
Tom Webb: 425-2479
- **USA Lamp**
Ladonna Allen: 800-778-6645
- **RECHARGEABLE BATTERY RECYCLING CORPORATION (RBRC)**
Marla Prince: 770-751-0046
- **ENVIRONMENTAL RECYCLING INC**
H.C. Morris: 293-0167

REGULATORY CONTACTS

- **DEEM: 258-3784**
- **NREPC: 502-564-2380**
- **LEPC: 911 OR 258-3784**
- **NRC: 1-800-424-8802**
- **KYERC: 502-564-7815**

LIST OF ATTACHMENTS

- Building Maintenance and Construction Tracking Form
- Container Inspection Checklist
- Pickup Locations
- USA Lamp and RBRC Packaging and Shipping Procedures
- Representative MSDS/Product Descriptions

CONTAINER INSPECTION CHECKLIST

- ☐ Date of inspection:
- ☐ Are containers in good condition? Yes No
- ☐ Are there any leaks or spills? Yes No If yes please describe:
- ☐ Are spills cleaned up immediately? Yes No

- ☐ Are all drums and pails securely closed? Yes No
- ☐ Are PCB containers stored in secondarily contained area? Yes No
- ☐ Is secondary contained area in good condition? Yes No
- ☐ Are labels on all containers readable? Yes No
- ☐ Do containers of PCBs have a Class 9 label and a PCB label? Yes No
- ☐ Is aisle space sufficient for inspection of containers? Yes No
- ☐ Can emergency equipment access the area? Yes No
- ☐ Is the building itself marked to indicate PCBs are stored inside?

INSPECTIONS MUST BE PERFORMED EVERY 30 DAYS AT A MINIMUM AND THE RESULTS RECORDED ON THIS FORM IN ORDER TO COMPLY WITH EPA REGULATIONS